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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/621,571	07/21/2000	Rajesh Bordawekar	13675(YOR9-2000-0365US1	4994

7590 02/11/2003

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EXAMINER

STEELMAN, MARY J

ART UNIT

PAPER NUMBER

2122

DATE MAILED: 02/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/621,571

Applicant(s)

BORDAWEKAR ET AL.

Examiner

Mary J. Steelman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 July 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 July 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

1. Claims 1-30 are pending.

#### ***Drawings***

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description:

Figure 4, item 412 is missing in the drawing, but in the description at page 10, line 16.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description:

Figure 4, item 400 is shown in the drawing, but not mentioned in the description.

A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

#### ***Specification***

4. The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code (page 6, line 1). Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01.
5. The use of the trademark JAVA has been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology.

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Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

6. The abstract of the disclosure is objected to because brackets are used on page 17, line 21. Brackets have a special meaning to the Patent and Trademark Office. All markings within brackets will be deleted at print time. Correction is required. See MPEP § 608.01(b).

***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. **Claims 2, 20, 21, 24, & 30** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

**7.35.01 Trademark or Trade Name as a Limitation in the Claim**

Claims 2, 20, 21, 24, & 30 contain the trademark/trade name JAVA. Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph. See Ex parte Simpson, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and not the goods themselves. Thus, a trademark or trade name does not identify or describe the goods associated with the trademark or trade name. In the present case,

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the trademark/trade name is used to identify/describe byte code instructions or a virtual machine and, accordingly, the identification/description is indefinite.

***Claim Rejections - 35 USC § 102***

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. **Claims 1-8, 11, 13-15 & 17-30** are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 6,484,313 to Trowbridge et al.

**Per claims 1, 23 and 27:**

-generating a persistent image, ahead of run time, that contains code for that procedure, and performing the following steps at run time. (Fig. 3, and col. 8, lines 11-14, "...code is compiled into native code...native code is stored on the storage 304.");

-checking for the existence and validity of a code image for said procedure.(Col. 12, lines 62-63, "...version information of the native code is verified against the current environment.");

-adapting the code image to the current execution context.(Col. 12, lines 63-67, "If a mismatch between the version information persisted and the information regarding the current environment is detected, then the offending methods may be just-in-time compiled for IL code to native code when their execution is needed.");

-using run-time compilation of the procedure if its code image does not exist, is invalid, or cannot be successfully adapted to the new execution context. (Col. 13, lines 1-3, "This new native code...is executed in lieu of the native code previously compiled ...and persisted.");

**Per claims 2, 24, and 30:** (Col. 1, lines 19-20 and col. 2, lines 12-13, "...systems that use intermediate languages include the JAVA virtual machine.")

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**Per claims 3, 25, and 28:** (Col. 13, lines 1-3, “This new native code...is executed in lieu of the native code previously compiled from the IL code and persisted (generated at runtime causing successive execution to use it).

**Per claims 4, 26, and 29:** (Col. 11, line 20, “...compilation is conducted not at run-time...”)

**Per claim 5:** (Col. 7, line 66 – col. 8, line 2, “...the non just-in-time-manner by which the OL code is translated into native code by the mechanism is as a background process...”)

**Per claims 6, 7, 8, and 11:** (Fig. 5 and col. 9, line 60 – col. 10, line 18, “...versioning refers to storing information regarding the environment in which the IL code has been compiled to native code...This information is then compared against current information...If the information differs...The execution engine may decide to not run the code, or may decide to just-in-time compile...versioning includes storing information such as the classes of objects that have been loaded...the invention is not limited to any particular type of data being matched at run-time in the versioning process.”

**Per claim 13:** (Col. 12, lines 19-39, “...the IL code from which the native code has been compiled is also persisted...A file is generated...The file desirably includes the original input metadata of the IL code...Furthermore, any other “fix ups” that the compilation process may have determined need to be performed...may also be included.” )

**Per claim 14:** (Col. 11, lines 41-44, “...compilation process performs only some early binding...”

**Per claim 15:** (Col. 11, lines 45-48, “...this access information, as well as version information regarding the current environment in which the current method of the IL code is being compiled into native code, is generated and maintained.”)

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**Per claims 17 and 18:** (Col. 12, lines 16-18 and 26-27, “Persistence of code refers to the storing of code in a non-volatile manner...” and “A file is generated...”)

**Per claims 19, 20 and 21:** (Fig. 4 and col. 4, lines 10-16, “...the invention is described in the general context of computer-executable instructions, such as program modules...Generally, program modules include routines, programs, objects, components, data structures, etc., that perform particular tasks or implement particular abstract data types.” Also, col. 11, lines 8-9, “...code is compiled to native code.” Also, col. 12, lines 15-16, “The code is output, desirably by being persisted.”)

**Per claim 22:** (Col. 12, lines 44-45 and line 58, “...execution of native code that has been previously compiled from IL code and persisted...” and “...each method of the native code is loaded...”)

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. **Claims 9, 10, and 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,484,313 to Trowbridge et al., in view of U.S. Patent 5,978,585 to Crelier.

Trowbridge disclosed an invention that compiles and persistently stores procedure code for reuse. Trowbridge failed to disclose the use of timestamps in a validation check. However, Crelier did disclose a development system that reduced the recompiling of dependent code modules. (See figures 4A, 4B and 4C.) (Col. 9, lines 60-65) “...the system has kept track of

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the timestamps of sources and compiled files thereof...Examination of the timestamps leads to detection of those files which have been modified. The system will recompile..." Also see, col. 10, lines 35-38, "...the compiler calls back into the dependency checker to determine whether each import must also be recompiled..."

Therefore, it would have been obvious, to one of ordinary skill in the art, at the time of the invention, to modify Trowbridge's invention to pre-compile and store byte code with Crelier's invention that uses timestamps to do a validation check on generated code, source code or dependent code segments because it allows for modified modules to be detected and re-compiled or re-interpreted to maintain program correctness. Furthermore, Trowbridge did address version comparisons (col. 9, line 60-col. 10, line 18) and disclosed that the invention is not limited to any particular type of data (timestamp) being matched at run-time, only that if there is a mismatch, that corrective measures are taken.

12. **Claim 16** is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,484,313 to Trowbridge et al., in view of U. S. Patent 6,151,703 to Crelier.

Trowbridge disclosed an invention that compiles and persistently stores procedure code for reuse. Trowbridge failed to disclose that portions of the code could be interpreted in subsequent executions. However, Crelier disclosed an invention that compiles bytecode as needed (col. 3, line 65 – col. 4, line 7) and stored. Crelier disclosed an "interpretOnInvoke function" (col. 12, lines 12-17) that allows the system to switch back and forth between calling a particular method as interpreted code or compiled code, without having to recompile code.

Therefore, it would have been obvious, to one of ordinary skill in the art, at the time of the invention, to modify Trowbridge's invention to pre-compile and store byte code by allowing



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the system to choose between interpreting or compiling allowing for compilation to be disabled (col. 4, line 42) whereby an executing program can produce interpreted code on the fly rather than wait for a complete module to be compiled then executed.

***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Pat No. 6078744 to Wolczko et al., (Save an initial compilation for re-use during subsequent executions. Also re-compiles when necessary.)

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mary Steelman, whose telephone number is (703) 305-4564. The examiner can normally be reached Monday through Thursday, from 7:00 A.M. to 5:30 P.M. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Morse can be reached on (703) 308-4789.

The fax phone numbers are (703) 746-7240 for regular communications and (703) 746-7239 for After Final communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

MS



02/07/2003



**ANIL KHATRI**  
**PRIMARY EXAMINER**